

IN THE CLAIMS

1. (currently amended) A wireless communication apparatus communicating with another wireless communication apparatus in an autonomous distributed network without a designated control station apparatus,

    said wireless communication apparatus comprising:

    frame period setting means for setting a predetermined frame period for each wireless communication apparatus;

    data slot setting means for setting slots serving as data transmission units;

    scan period setting means for setting a scan period for scanning for a beacon, the scan period being longer than said predetermined frame period;

beacon scan means for setting a beacon scan period over a time of the predetermined frame period other than when a beacon signal is transmitted by the wireless communication apparatus;  
and

    a reception slot setting means for setting at least one reception slot for receiving a signal in said predetermined frame period.

2. (previously presented) The wireless communication apparatus as set forth in claim 1, further comprising:

    transmitting means for transmitting a beacon signal to another wireless communication apparatus at a predetermined timing of said predetermined frame period, wherein the beacon signal has information about a timing of the reception slot set by said reception slot setting means; and

    receiving means for receiving a signal transmitted by said another wireless communication apparatus.

3. (previously presented) The wireless communication apparatus as set forth in claim 2, wherein said receiving means receives the signal at a timing of the reception slot set by said reception slot setting means.

4. (previously presented) The wireless communication apparatus as set forth in claim 1, further comprising beacon transmitting means for transmitting a beacon signal at a timing of a head of the predetermined frame period.

5. (previously presented) The wireless communication apparatus as set forth in claim 1, further comprising:

data transmitting means for transmitting data to another wireless communication apparatus,

storage means for storing timings of reception slots of other wireless communication apparatuses, and

control means for making said data transmitting means transmit data at a timing of a reception slot of said another wireless communication apparatus when there is transmission data to be sent to the other wireless communication apparatus.

6. (currently amended) A wireless communication apparatus for communicating with another wireless communication apparatus in an autonomous distributed network without a designated control station apparatus,

said wireless communication apparatus comprising:

frame period setting means for setting a predetermined frame period for each communication apparatus;

data slot setting means for setting slots serving as data transmission units;

scan period setting means for setting a scan period longer than said predetermined frame period; and

scanning means for receiving a beacon signal transmitted from another wireless communication apparatus over a time of said predetermined frame period other than when a beacon signal is transmitted by the wireless communication apparatus.

7. (previously presented) The wireless communication apparatus as set forth claim 6, further comprising:

managing means for converting a timing of said received beacon signal and a timing of the reception slot into its own slot positions and managing same; and

transmitting means for transmitting a signal at the timing of the reception slot of the corresponding wireless communication apparatus when there is data directed to another wireless communication apparatus.

8. (previously presented) The wireless communication apparatus as set forth in claim 7, further comprising control means for making said transmitting means transmit a signal at the timing of the reception slot of the corresponding wireless communication apparatus when there is data directed to the other wireless communication apparatus,

the scanning means obtaining the timing of the beacon signal and the timing of the reception slot from said other wireless communication apparatus.

9. (currently amended) The wireless communication apparatus as set forth in claim 6, further comprising beacon transmitting timing control means for controlling a timing of transmission of its own beacon so as not to collide with the beacon of the other wireless communication apparatus, wherein

the scanning means receives a beacon from the another wireless communication apparatus.

10. (previously presented) The wireless communication apparatus as set forth in claim 6, further comprising transmitting means for transmitting a beacon signal at a predetermined timing of the frame period, wherein the beacon signal has information relating to a beacon transmitting slot transmitted from another wireless communication apparatus obtained by said scanning means.

11. (currently amended) A wireless communication system for communication among a plurality of wireless communication apparatuses in an autonomous distributed network without a designated control station apparatus, wherein

each of the wireless communication apparatus configuring the network comprises:

frame period setting means for setting predetermined frame period;

data slot setting means for setting slots serving as data transmission units;

beacon slot setting means for setting beacon slots for transmitting beacon signals at a predetermined timing of said predetermined frame period;

reception slot setting means for setting at least one reception slot for the receiving operation in said predetermined frame period;

transmitting means for transmitting a beacon signal that has information about a timing of a reception slot set by said reception slot setting means and informing its presence to another wireless communication apparatus in the neighborhood;

scan period setting means for setting a scan period longer than said predetermined frame period;

managing means for managing a timing of receiving a said beacon signal of another wireless communication apparatus in the neighborhood and timing of the reception slot; and

performing scan processing means for performing continuous reception and receiving a beacon signal of another wireless communication apparatus in the neighborhood over a time of said predetermined frame period other than when a beacon signal is transmitted by the transmitting means and receiving a beacon signal of another wireless communication apparatus in the neighborhood.

12. (previously presented) The wireless communication system as set forth in claim 11, wherein the system transmits the beacon signals at a timing of a head of said predetermined frame period.

13. (previously presented) The wireless communication system as set forth in claim 12, wherein timings by which wireless communication apparatuses transmit beacon signals are arranged so as not to overlap each other.

14. (canceled)

15. (currently amended) A wireless communication method for communication among a plurality of wireless communication apparatuses in an autonomous distributed network without a designated control station apparatus, wherein each wireless communication apparatus

sets a predetermined frame period and slots serving as data transmission units;

sets at least one beacon slot for transmitting a beacon signal at a predetermined timing of said frame period and sets

reception slot for receiving operation in said predetermined frame period; and

sets a scan period longer than said predetermined frame period; and

sets a beacon scan period over a time of the predetermined frame period other than the predetermined timing of said frame period of the at least one beacon slot.

16. (previously presented) The wireless communication method as set forth in claim 15, further comprising transmitting a beacon signal that has information about timing of the set reception slot and informing its presence to another wireless communication apparatus located in the neighborhood.

17. (previously presented) The wireless communication method as set forth in claim 15, further comprising having a wireless communication apparatus that engages in reception processing at a timing of said set reception slot and receives data transmitted from another wireless communication apparatus.

18. (previously presented) The wireless communication method as set forth in claim 15, wherein the system transmits a beacon signal at a timing of a head of said predetermined frame period.

19. (currently amended) A wireless communication method for communication among a plurality of wireless communication apparatuses in an autonomous distributed network without a designated control station apparatus, wherein each wireless communication apparatus:

sets a predetermined frame period and slots serving as data transmission units,

provides any scan period longer than said frame period, performs scan processing for continuous reception over a time of said predetermined frame period unit other than when a beacon signal is transmitted therefrom, and

receives a beacon signal transmitted from another wireless communication apparatus located in the neighborhood over the time of said predetermined frame period unit other than when the beacon signal is transmitted therefrom.

20. (previously presented) The wireless communication method as set forth claim 19, further comprising a step of managing a timing of the reception of the beacon signal transmitted from said other wireless communication apparatus and a timing of the reception slot.

21. (previously presented) The wireless communication method as set forth in claim 19, comprising steps of:

storing a timing of a beacon signal from another wireless communication apparatus located in the neighborhood and a timing of the reception slot and

engaging in a transmitting operation at a timing of the reception slot of the another communication apparatus when there is data destined for the another wireless communication apparatus.

22. (currently amended) A wireless communication method for communication among a plurality of wireless communication apparatuses an autonomous distributed network without a designated control station apparatus, comprising, at each wireless communication apparatus, the steps of:

setting a predetermined frame period and slots serving as data transmission units,

setting at least one beacon slot for transmitting a beacon signal at a timing of head of said predetermined frame period and a reception slot for a receiving operation in said predetermined frame period,

transmitting a beacon signal that has information about a timing of the set reception slot and notifying its existence to another communication apparatus located in the neighborhood,

setting a scan period longer than said predetermined frame period and performing scan processing for continuous reception and receiving a beacon signal from another wireless communication apparatus over the time of said predetermined frame period unit other than when a beacon signal is transmitted therefrom.

23. (previously presented) The wireless communication method as set forth in claim 22, further comprising steps of:

receiving a beacon signal of another wireless communication apparatus located in the neighborhood, managing a timing of the reception of said beacon signal and a timing of the reception slot, and

transmitting a signal at the timing of the reception slot of the corresponding wireless communication apparatus when communicating directed to the another wireless communication apparatus.

24. (previously presented) The wireless communication method as set forth claim 22, further comprising the step of receiving a beacon from another wireless communication apparatus by said scanning processing and controlling a timing of transmission of its own beacon so as not to collide with the beacon of the other wireless communication apparatus.

25. (previously presented) The wireless communication method as set forth in claim 22, further comprising the step of transmitting a beacon signal at a predetermined timing of the predetermined frame period, wherein the beacon signal has information relating to a beacon transmitting slot transmitted from another wireless communication apparatus obtained by said scanning processing.